Antelopes and Deer coexisted in the Miocene era, but most of the former are Pleistocene in date. The crowns of the molars are prolonged in all the cavicornia. The *Camels* are not directly allied to the other forms; they retain an upper incisor; their molars are in double lunules, and of considerable length. Their geographical distribution is very peculiar, they being confined to North Africa, Arabia, and South America. Dr. Falconer has found their remains in the Sevalik Hills, and Leidy has done the same in North America, naming one of his genera *Procamelus*, and another earlier one Poëbrotherium.

This ends the description of the Artiodactylata, and terminates the course of lectures.

AN ENGINEERING COLLEGE IN JAPAN

THE Japanese Government, as represented by the ambassadors who visited this country last summer and autumn, have resolved upon taking example by our western civilisation, and establishing a college in the city of Yeddo for affording instruction in civil and mechanical engineering to the youth of Japan, as a strong desire has arisen in that country to make an effort to develop the great natural resources which it is known to possess. Our advice and practical assistance in the establishment of the college have been called into requisition, owing to the ambassadors having observed during their sojourn amongst us, how intimately our eminent industrial status as a nation is dependent upon the attention which we devote to the cultivation of those sciences which are involved in the mining, metallurgical, engineering, and many manufacturing industries, and in bringing the forces of nature under the influence of man.

The general scheme of the instruction has been devised by one of our eminent engineers, a gentleman whose experience of Continental and British systems of instruction is very extensive and varied, and judging from the appointment already made, it is evident that the professorial equipment of the college will devolve upon this country. The principal of the college, who is also to be the professor of engineering and mechanics, is Mr. Henry Dyer, M.A. B.Sc., who studied at the University of Glasgow, under the late Prof. J. M. Rankine, Sir William Thomson, and their colleagues. Mr. Dyer was a Whitworth Scholar, and his career hitherto has been one of great and well deserved success. He is well qualified to act as principal of the Yeddo Engineering College.

Prof. Dyer is to be assisted in his duties in the Japanese College of Engineers by professors of mathematics, natural philosophy, chemistry, geology, and mineralogy, and by teachers of English, &c. At least two important appointments have been made, namely, to the professorship of mathematics and to the professorship of natural philosophy. The former has been conferred on Mr. D. H. Marshall, at present assistant to Prof. P. G. Tait in Edinburgh University; and the latter is to be filled by Mr. W. E. Ayrton, formerly of University College, London, and the University of Glasgow. The last-named gentleman has already been employed in the East Indian telegraphic service, and he is at present assistant-engineer in connection with the manufacture of the Great Western Telegraph Cable under Sir William Thomson and Prof. Fleeming Jenkin.

In connection with this Engineering College there are several other points of importance that may be stated. It is intended to institute a geological survey of Japan, and not improbably the active superintendence of that work will devolve upon the gentleman who may ultimately be appointed to the professorship of geology and mineralogy. As an important adjunct to the College, there will be erected a technical workshop, fitted with steam-engine, machine tools, and all the necessary appliances for familiarising the young Japanese engineers with the principles of construction, &c. There will also be a technological museum for the illustration of the progressive stages of various industrial processes from the raw materials to the finished products.

NOTES

LETTERS, dated St. Thomas, appear in the *Times* and *Daily News* from correspondents on board the *Challenger*, where the vessel arrived on March 16. The voyage from Teneriffe had occupied 30 days. The usual programme was to furl sails early in the morning of every alternate day, put the ship under steam, obtain a sounding-haul of the dredge and serial temperatures at every 100 fathoms from the surface down to 1,500 fathoms, then at dusk sail was again made. The sounding line and dredge have been kept constantly going. The former showed that a pretty level bottom runs off from the African coast, deepening gradually to a depth of 3,125 fathoms at about one-third of the way across to the West Indies. If the Alps, Mont Blanc and all, were submerged at this spot, there would still be half a mile of water above them. Five hundred miles farther west there is a comparatively shallow part, a little less than two miles in depth. The water then deepens again to three miles, which continues close over to the West Indies. At the deepest spots both on the east and west side of the Atlantic, the dredge brought up a quantity of dark red clay, which contained just sufficient animal life to prove that life exists at all depths. No difficulty was experienced in obtaining these deep-sea dredgings, and it was merely a question of patience, each haul occupying twelve hours. In depths over two miles little has been found, but that little was totally new. One of the lions of the cruise is a new species of lobster perfectly transparent. Not content with obtaining animals with eyes so fully developed that the body may said to be an appendage, a new crustacean has now dredged up, in which the body has cut itself clear of the eyes altogether, and the animal is totally blind. It has no eyes, or even the trace of an eye. To make up for its deficiency nature has supplied it with the most beautifully developed, delicate lady-like claws, if one may use the term, it is possible to conceive. Nearer the West Indies, in a depth of only half a mile, some similar creatures were brought up, and here the claws, longer than the body, are armed throughout with a multitude of spike-like teeth, looking more like a crocodile's jaw than anything else. At a short distance from Teneriffe, in a depth of a mile and a half, a rich and extremely interesting haul of sponges and coral was obtained, but the latter was unfortuately dead. It is a white species, as large and heavy as the pink coral of the Mediterranean. There are great hopes of obtaining a specimen alive. The nature of the bottom brought up and the way the trawl and dredge frequently catch in being dragged along prove, undoubtedly, that the bottom of the sea, even at great depths, is not so smooth and free from rocks as has hitherto been supposed. A conclusion drawn from this fact is that a considerable movement of the water at the bottom must be going on. The *Challenger* will remain at New York until the 25th of April, and at Bermuda until the mail arriving on the 8th of May, after which she will sail for Madeira, carrying another section line across the Atlantic.

WE have learnt with pleasure that it is contemplated to present a testimonial to Dr. Murie, in recognition of his numerous additions to our knowledge in the field of Biology. From a list before us we learn that Dr. Murie is the author of seventy-five separate works, large and small, mostly connected with zoology. An opinion having been expressed that it might not be inappropriate to present Dr. Murie with a substantial recognition of the services which he has rendered to science by his numerous memoirs printed in the Proceedings and Transactions of the Zoological Society and other scientific journals, the following gentlemen have already acquiesced in that opinion, and state their belief that Dr. Murie's career has been a most meritorious one, very beneficial to science, and highly honourable to himself. The Viscount Walden, F.R.S., President of the Zoological Society of London, Sir Charles Lyell, Bart., Charles Darwin, F.R.S., Joseph D. Hooker, C.B., F.R.S., Allen Thomson, M.D, F.R.S., G. M. Humphry, M.D., F.R.S., James Glaisher, F.R.S., W. Sharpey, M.D., F.R.S., Wm. Turner, M.B., J. Lockhart Clarke, M.D., F.R.S., W. K., Parker, F.R.S., John Young, M.D., F.R.S.E., F.G.S., George Busk, F.R.S, St. George Mivart, F.R.S., Frank Buckland, F.Z.S., Inspector of Salmon Fisheries, William Aitken, M.D., J. Bell Pettigrew, M.D., F.R.S. Prof. Turner, of the University of Edinburgh, and Dr. Bell Pettigrew, of the Royal College of Surgeons of Edinburgh, have consented to receive subscriptions with a view to furthering the above object. Intending subscribers should communicate with either of these gentlemen.

AT the close of thee winter session of the Class of Physiology in Edinburgh University last Friday, Dr. J. G. McKendrick, F.R.C.P.E., was presented with an address signed by upwards of 400 present and former students of the class. Dr. McKendrick has for the last four years held the office of Demonstrator of Practical Physiology under Prof. J. Hughes Bennett, and during that period the classes in Practical Physiology have increased, from small beginnings, till more than 400 students have been enrolled in a single session. During the last two sessions Dr. McKendrick has conducted the entire work connected with the Chair, in the absence of Prof. Bennett from ill health.

THE government of New South Wales have generously granted 1,000*l.* for the purpose of observing the transit of Venus, and Mr. Russell is taking active measures to provide three stations in that colony with all the requisites for observing the transit, and obtaining at the same time photographs of the planet's position. The three stations will be at Sydney, at Eden, near the south-eastern point of N.S.W., and the third station on the Blue mountains, about fifty miles west from Sydney. Both stations are on telegraph lines, which will be used to determine their longitude. The mountain station has been chosen to avoid, if possible, any chance of cloudy weather, and in the hope that atmospheric difficulties generally will be less.

WE hear with great regret of the death of Dr. Torrey, which took place from pneumonia on March 10. Since the decease of Prof. Darlington he had been the Nestor of American botanists. Torreya, a genus of Taxacea of N. America and N.E. Asia, was named after him. He was a foreign member of the Linnean Society.

THE following has been sent us by a correspondent of M. Riedel:—"The Russian man-of-war *Tsanvina*, Commodore Michel Comancy, is steaming from Ternate to Papua the 28th of November past in search of the missed Russian naturalist, M. Micluha Maclay.—T. G. F. RIEDEL, C.M.Z.S.—Gorontalo, North Celebes, December 30, 187 2."

THE Royal Irish Academy has sanctioned the following grants out of the funds entrusted to it by Parliament for assisting scientific research:—50*l.* to W. H. Bailey for additional explorations at Kiltorcan for fossil plants; 40*l.* to G. H. Kinahan, to assist him in microscopical examinations into the structure of rocks; and 30*l.* to Prof. W. R. M'Nab, M.D., for researches in vegetable physiology.

WE are informed that the Hippopotamus, born a short time ago in the Zoological Gardens at Amsterdam, and which gave some promise of surviving, has, like most of its predecessors, died; so the young "Guy" in Regent's Park, which is doing as well as can be wished, is the only living specimen born and bred in Europe.

PROF. BRÜNNOW, the Astronomer Royal for Ireland, has just issued a second part of his astronomical observations and researches made at Dunsink, the observatory of Trinity College, Dublin. This part contains—New Determination of the Parallax of the Star Groombridge, 1830; Further Investigation of the Parallax of 615 Draconis; Determination of the Parallax of 85 Pegasi; Determination of the Parallax of the * Bradley, 3077; Further Investigations on the Parallax of α Lyræ; Observations of 1830 Groombridge and * (*a*); Observations of 1830 Groombridge, and * (*b*); Observations of 615 Draconis and * (9·5) preceding; Observations of 85 Pegasi; Observations of Bradley 3077 and * (10) following; and Observations of α Lyræ and * (10) following.

THE preliminary report of the U.S. explorations and surveys during the year 1871, in Nevada and Arizona, conducted by Lieut. George M. Wheeler, of the engineer corps, has lately been published in quarto form by the government printer. It contains an account of the plan of the survey, as initiated by Lieut. Wheeler in 1870, and which he has successively continued during the year 1872. The work accomplished during 1871 embraces, among other results, the mapping out of various mining districts, and the determination of the areas, direction, and condition of the lodes. The topographical features of the great Colorado plateau have been developed over the region extending from St. George, in Utah, to the White Mountains near the border line of Arizona and New Mexico, and much information has been gathered as to the geology of this plateau, and of numerous inclosed and interior basins in Nevada. The exploration of the Colorado has determined the absolute limit beyond which a party of examination will not be likely to ascend that river. It has been ascertained that a railroad can cross the Colorado and the mouth of the Virgin River, that it can be carried by easy grades, and that the Colorado can be crossed by a north and south line near the foot of the Grand Cañon.

THE Institution of Naval Architects commences its session for 1873 to-day. The meetings will be held as follows in the hall of the Society of Arts, John Street, Adelphi:—On Thursday, April 3, morning at 12, and evening at 7 o'clock; on Friday, April 4, morning at 12, and evening at 7 o'clock; and on Saturday, April 5, morning at 12 o'clock only. The Right Hon. Sir J. S. Pakington, Bart., M.P., G.C.B., D.C.L., president, will occupy the chair. Judging from the programme of proceedings, this year's meeting ought to be full of interest, and may be productive of important practical results.

THE first report (for 1872) of Governor N. P. Langford, superintendent of the Yellowstone National Park, has just made its appearance, and contains an account of what has been done during the year to protect and preserve this interesting region for the benefit of future visitors. We are informed that new natural wonders are continually discovered, and that the number of geysers, hot springs, &c., is almost countless. The Park was visited during 1872, in connection with the expedition of Prof. Hayden, and new routes determined, by which access will be much easier than heretofore. At present the only mode of approach is by means of saddle and pack trains, and Governor Langford suggests the propriety of constructing several waggon-roads for the convenience of the public. When improvements are made it is thought that extensive settlements will spring up in that region, supported in part by the travel of tourists, and partly by the exportation of lumber made from valuable timber in the district. No mines appear to have been detected, nor is there any prospect of them.

WE have received from the U.S. Engineer Office a well-constructed skeleton map prepared by Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army, covering that part of the United States west of the 100th meridian, and exhibiting the relations that exist between lines and areas of explorations and surveys conducted under the auspices of the War Department in that region. It is of interest as showing, in an approximately detailed manner, the routes of government surveys over the large area embraced.

AN excellent opportunity for obtaining a valuable collection of minerals and fossils is furnished by the offer for sale in the U.S. of the celebrated Troost Cabinet, which, indeed, almost belongs to a former generation, having been packed away since the death of its collector at Nashville, Tennessee, a period of over twenty years. It was brought together at a time when rare and choice minerals were more easily obtained than at pressent, by Dr. Troost, who was at the time state geologist of Tennessee, and succeeded in making up one of the finest series of minerals in this country. The collection is at present in charge of Professor J. B. Lindley, of Nashville, to whom communications on the subject are to be addressed.

THE Syndicate recently appointed by the University of Cambridge to inquire into the scheme for establishing a county college at Cambridge have issued their report. While favourable to the scheme generally, they are not prepared to recommend that any special title should at present be offered by the University to students in the manner proposed, or that the University should prescribe rules for the admission of students into the proposed college. They recommend that a general approval be given to the proposed scheme. His Grace the Duke of Devonshire has consented to name the trustees.

THE Marquis of Westminster, K G., presided at a meeting at Chester on Saturday, in furtherance of a scheme for uniting under one roof the City Library and Reading Room, the Society of Arts, the Architectural and Archæological Society, the Natural Science Society, and also for establishing a local museum, the nucleus of which is already secured to the city by a valuable and extensive collection of geological specimens presented by the Marquis.

THE foundation-stone of the new Presidency College, Calcutta, was laid on February 27 by his Excellency the Governor.

A NEW archæological society has been started at Rajkote, Kattywar, India, named the Sourashtra Society. Its object is the encouragement of antiquarian research, the recording of traditional and ethnological information, and generally to add to the knowledge of the physical, social, and philosophical condition of the Province of Kattywar.

PROBABLY the oldest collection of specimens of natural history now extant in the United States constitutes a portion of the present cabinet of Princeton College, New Jersey. It was first brought together by Monsieur Delacoste, a French collector and naturalist, who flourished in New York at the beginning of the present century, and who published in 1804 a catalogue of his curiosities (chiefly collected in Guiana), filling a pamphlet of about ninety pages. The collection embraces about 260 species of birds, 63 of quadrupeds (which included both mammals and turtles), over 50 of fishes, and other objects in proportion. This collection is still preserved, for the greater part in good condition, at Princeton. The establishment of the Delacoste collection does not antedate that of Peale in Philadelphia; but that long since disappeared, partly by the scattering of the material collected, and partly from its destruction by fire.

COMMANDER SELFRIDGE arrived at Panama on January 21 last, and sailed on the 25th, on board the steamer *Tuscarora*, for the coast of Darien, for the purpose of continuing the survey of the Darien Ship-Canal route. Work will be commenced about latitude 6° 32′ north and be carried across the "divide," following the valley of the river Bajaya, a tributary of the Atrato, to its junction with the latter river, at a distance of about 150 miles from the Caribbean Sea.

MESSRS. BLACKWOOD AND SONS have sent us a well-constructed North Polar Chart, by Mr. Keith Johnston. Besides showing the latest discoveries of voyagers within the Arctic circle, the chart indicates each of the farthest points which have as yet been attained on the margin of the unvisited area, the great glacier and snow fields, the average and extreme limits of the appearance of sea ice, the northmost limits of tree growth on the land, the depths of the Arctic waters, so far as these are known, and the elevation of the land which surrounds them. The political boundaries of the countries which come within the limits of the map are also indicated.

WE have received a copy of the correspondence between the Royal Geographical Society and the Government with reference to the new Arctic Expedition which Government was unsuccessfully petitioned to undertake. The pamphlet contains *in extenso* all the documents submitted to Messrs. Lowe and Goschen, containing information of great intrinsic value.

THE earthquakes in Samos continued in March. A report had been spread by the Smyrniotes that the statement of earthquakes had been invented in the island to draw the Bey back from Constantinople.

ON Feb 20 no less than 20 distinct shocks were felt at Afioom Kara Hissar in Asia Minor, causing great alarm, as there was also almost incessant moving of the earth's surface. On the next day the wind veered round to the north with sharp cold and frost.

ON March 7, at 6 A.M., a smart shock of earthquake was felt at Rhodes.

OUR neighbours on the other side of the Atlantic are continually sending us what they term "Preliminary Descriptions" of novel forms of existing or extinct animals. These consist of new names, followed by short and very imperfect accounts of any apparently peculiar specimens which the author has had the good fortune to hit upon, a note being generally appended to the effect that fuller descriptions will shortly appear in some work now in hand. Our friends seem to forget that the form of ability which gives rise to an illustrious name, is gained by the employment of original method, rather than by the simple recording of novel facts. We fear that the large amount of undigested matter thus brought forward may in the long run produce a condition of dyspepsia of the scientific mind, which will tell hard on the more modest and painstaking workers on the subject, by producing a generally diffused and excessive scepticism as to the value of new discoveries, however promising.

THE "Results of Meteorological and Magnetical Observations, 1872," taken at Stonyhurst College Observatory, show that the meteorological work there is done with great care and minuteness.

WE would recommend to all science teachers the lecture recently delivered by Mr. Joseph Payne at the College of Preceptors, on "The True Foundation of Science-Teaching," now published in a separate form.

THE additions to the Zoological Society's Gardens during the past week include two Barbary Turtle Doves (*Turtur risorius*) from Africa, presented by Mr. G. Hanney; a Yellow-footed Rock Kangaroo (*Petrogale xanthopus*), and a Prince Alfred's Deer (*Cervus alfredi*), born in the Gardens; also a White-thighed Colobus (*Colobus bicolor*) from West Africa, purchased.